

Claims

1. In a touch screen system that has at least one physical control device operating on a touch screen, the improvement comprising:

5 a first antenna secured adjacent to the touch screen and control circuit means for driving said field antenna to generate an EM field extending across the touch screen;

said at least one physical control device including resonant antenna means for receiving said EM field and re-radiating an electromagnetic response signal;

10 means for selectively operating said resonant antenna means to re-radiate said response signal when said physical control device is touched by a user, and for selectively disabling said resonant antenna means when said physical control device is not being touched by a user;

15 said control circuit further including means for receiving said response signal and entering a control command into an electronic device operatively associated with said touch screen assembly.

2. The improved touch screen assembly of claim 1, wherein said touch screen employs a resistance-type touch detection arrangement.

20 3. The improved touch screen assembly of claim 1, wherein said first antenna extends at least partially about the perimeter of said touch screen.

4. The improved touch screen assembly of claim 1, wherein said resonant antenna means includes an inductor and a capacitor connected in a resonant circuit.

5 5. The improved touch screen assembly of claim 4, wherein said means for selectively operating said resonant antenna includes finger touch connection means for completing said resonant circuit upon receiving a finger touch.

10 6. The improved touch screen assembly of claim 1, wherein said control circuit means includes means for generating a periodic signal for driving said first antenna.

15 7. The improved touch screen assembly of claim 6, wherein said control circuit means includes means for modulating said periodic signal.

8. The improved touch screen assembly of claim 7, wherein said first antenna serves as a receiving antenna for picking up said response signal, and said means for receiving said response signal is connected to said first antenna.

20 9. The improved touch screen assembly of claim 6, wherein said means for receiving said response signal includes means for detecting said response signal when said periodic signal is in an OFF state.

10. The improved touch screen assembly of claim 9, wherein said means for receiving said response signal includes counter means for detecting said modulated periodic signal.

11. The improved touch screen assembly of claim 10, wherein said counter means is synchronized by said periodic signal.

12. The improved touch screen assembly of claim 1, wherein said physical control device includes a post assembly.

13. The improved touch screen assembly of claim 12, wherein said post assembly includes a base portion having a surface adapted to releasably engage said touch screen.

14. The improved touch screen assembly of claim 13, wherein said resonant antenna means includes an inductor coil secured within said base portion.

15. The improved touch screen assembly of claim 14, wherein said base portion is generally cylindrical, and said inductor coil is disposed in coaxial alignment with said base portion.

16. The improved touch screen assembly of claim 12, wherein said post assembly includes a outer crown end, and said means for selectively operating

said resonant antenna includes a plurality of switch contacts secured to said crown end.

17. The improved touch screen assembly of claim 1, wherein said physical
5 control device includes a pen.

18. The improved touch screen assembly of claim 17, wherein said pen
includes a tip adapted to selectively provoke a touch detection by said touch
screen.

19. The improved touch screen assembly of claim 18, wherein said resonant
antenna means includes an inductor coil and capacitor secured within said pen.

20. The improved touch screen assembly of claim 19, wherein said means
15 for selectively operating said resonant antenna includes touch contact means on
a barrel portion of said pen for completing a circuit between said inductor coil
and said capacitor.

21. The improved touch screen assembly of claim 20, further including
20 cover means movably secured to said barrel portion, said cover means being
selectively positionable to prevent operation of said touch contact means.

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22. The improved touch screen assembly of claim 6, wherein said periodic signal is unmodulated.

23. The improved touch screen assembly of claim 22, wherein said first antenna serves as a receiving antenna for picking up said response signal, and said means for receiving said response signal is connected to said first antenna.

24. The improved touch screen assembly of claim 22, wherein said means for receiving said response signal includes means for detecting said response signal when said periodic signal is in an OFF state.

25. The improved touch screen assembly of claim 1, further including means for correlating said response signal with the position of a touch detection signal from said touch screen to form inputs to said electronic device.

26. In a touch screen system that has at least one physical control device operating on a touch screen associated with an electronic device, a method for signaling the electronic device from the physical control device, including the steps of:

transmitting an EM field in the area adjacent to the touch screen;
providing a resonant antenna in said at least one physical control device, said resonant antenna tuned to said EM field;

selectively operating said resonant antenna to generate a response signal when said physical control device is touched by a user, and selectively disabling said resonant antenna when said physical control device is not being touched by a user,

5 receiving said response signal and entering a control command into the electronic device.

27. The method of claim 26, wherein said receiving step is carried out during OFF cycles of said EM field.

28. The method of claim 26, further including the step of modulating said EM field.

29. The method of claim 26, further including the step of correlating said response signal with the position of a touch detection signal from said touch screen to form an input to said electronic device.